

Serial No.: 10/718,507

Filing Date: 11/19/2003

Attorney Docket No. 125.135USR1

Title: CONSTRAINED-ENVELOPE DIGITAL-COMMUNICATIONS TRANSMISSION
SYSTEM AND METHOD THEREFOR

In the Claims

Please amend claims 6 and 14 as follows:

6. (Thrice Amended) A constrained-envelope digital communications transmitter circuit comprising:

a pulse-spreading filter configured to receive a quadrature phase-point signal stream of digitized quadrature phase points and produce a filtered signal stream, said filtered signal stream exhibiting energy corresponding to each phase point spread throughout a plurality of unit baud intervals;

a constrained-envelope generator coupled to said pulse-spreading filter and configured to produce a constrained-bandwidth error signal stream;

a combining circuit coupled to said pulse-spreading filter and to said constrained envelope generator, said combining circuit configured to combine said filtered signal stream and said constrained-bandwidth error signal stream to produce a constrained envelope signal stream; and

a substantially linear amplifier having an output and having an input coupled to said combining circuit;

wherein:

said pulse-spreading filter is a first pulse-spreading filter;

said transmitter circuit additionally comprises a delay element coupled between said first pulse-spreading filter and said combining circuit; and

said constrained-envelope generator comprises a second pulse-spreading filter coupled to said combining circuit;

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[A digital communications transmitter circuit as claimed in claim 5] wherein:

said first pulse-spreading filter is configured so that each phase point is transformed into a Nyquist-type datum burst extending over a plurality of unit baud intervals, having a datum-burst peak value occurring in one of said plurality of unit baud intervals and datum-burst zero values occurring substantially at integral unit baud intervals away from said datum-burst peak value, so that said filtered signal stream in each unit baud interval substantially equals the sum of said Nyquist-type datum bursts from a plurality of phase points; and

said constrained-envelope generator is configured so that said second pulse spreading filter receives error pulses, transforms each error pulse into a Nyquist-type error burst extending over a plurality of unit baud intervals, having an error-burst peak value occurring in one of said plurality of unit baud intervals and error-burst zero values occurring substantially at integral unit baud intervals away from said error-burst peak value, so that said constrained-bandwidth error signal stream in each unit baud interval substantially equals the sum of said Nyquist-type error bursts from a plurality of error pulses.

14. (Thrice amended) A constrained-envelope digital communications transmitter circuit comprising:

a pulse-spreading filter configured to receive a quadrature phase-point signal stream of digitized quadrature phase points and produce a filtered signal stream, said filtered signal stream exhibiting energy corresponding to each phase point spread throughout a plurality of unit baud intervals;

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a constrained-envelope generator coupled to said pulse-spreading filter and configured to produce a constrained-bandwidth error signal stream;

a combining circuit coupled to said pulse-spreading filter and to said constrained envelope generator, said combining circuit configured to combine said filtered signal stream and said constrained-bandwidth error signal stream to produce a constrained envelope signal stream; and

a substantially linear amplifier having an output and having an input coupled to said combining circuit;

[A digital communications transmitter as claimed in claim 1] wherein:

said constrained-envelope generator is an off-time constrained-envelope generator;

said constrained-bandwidth error signal stream is an off-time constrained bandwidth error signal stream;

said transmitter circuit additionally comprises an on-time constrained envelope generator coupled to said pulse-spreading filter and configured to produce an on-time constrained-bandwidth error signal stream; and

said combining circuit is coupled to said pulse-spreading filter, to said off-time constrained-envelope generator, and to said on-time constrained-envelope generator, and said combining circuit is configured to combine said filtered signal stream, said off-time constrained-bandwidth error signal stream, and said on-time constrained-bandwidth error signal stream to produce said constrained-envelope signal stream.

Please cancel claims 42-44, 47-49, and 51.

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Please amend claims 54, 59 and 61 as follows:

54. (Twice amended) A digital communications transmitter circuit as claimed in claim 53 additionally comprising an interleaver coupled to said phase mapper.

59. (Thrice amended) A transmission method as claimed in claim 61 wherein:

said generating step comprises the step of filtering an error signal stream having one error pulse per unit baud interval to produce said constrained-bandwidth error signal stream, said step of filtering an error signal spreading energy from each error pulse in said error signal stream over a plurality of unit baud intervals;

said step of delaying said filtered signal stream comprises producing a delayed signal stream; and

said combining step combines said delayed signal stream and said constrained bandwidth error signal stream to produce said constrained-envelope signal stream.

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STATUS OF CLAIMS

1: Canceled.

2-4: Pending.

5: Canceled.

6-8: Pending

9: Canceled.

10: Pending.

11-13: Canceled.

14: Pending.

15-18: Canceled.

19, 20: Pending.

21-23: Canceled.

24-29: Pending.

30-51: Canceled.

52-55: Pending.

56-57: Canceled.

58-59: Pending.

60: Canceled.

61-64: Pending.